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CURRENT LITERATURE.

BOOK REVIEWS.

The fertility of the land.

In the volume of the Rural Science Series bearing the above title¹ there is placed in permanent form the observations, the experience, and the convictions of a man of mature years, of rare good judgment, and of wide intimate personal contact with the subjects and objects of the whole text. A man of clear thinking, pleasing expression, and warm sympathies, who winnows his grain clean, has given to those who will read it an extremely instructive and intensely practical book.

The title chosen for the volume is such as to permit the author to present his views regarding the practical details of a wide range of farm problems, and to use a large share of the results of his own studies, and of those of others bearing upon them.

The subjects treated are set forth under fifteen chapters: an inventory of the land; the evolution of the plow; tillage and the land; conservation of moisture; irrigation and drainage; farm manures; manures produced by various animals; the waste of manures; the care, preservation, and application of manure; nitrogen and nitrification; the phosphoric acid and potash supply; commercial fertilizers; lime and various amendments; green manures and fallows; rotations. Then follows an appendix of thirty pages presenting the fertilizing constituents of agricultural and other products, compiled from various sources, in which the water, ash, nitrogen, phosphoric acid and potash are given in pounds per thousand pounds of the substance. A full index and detailed table of contents make the subject matter of the book contained in the 403 pages easily accessible.

It will be evident from the foregoing that the book has in it much of value and interest for the plant physiologist as well as for the plant culturist.

The thoughts which are presented in the first few pages, where the author has "a chat with the young farmer," are extremely wholesome, and introduce the reader to the man in such a way that he is assured of good things to follow.

The book is intended for those who think, and it is one which will appeal

¹ROBERTS, ISAAC P.:—The fertility of the land, a summary sketch of the relationship of farm practice to the maintaining and increasing the productivity of the soil. 12mo, pp. 440, illustrated. New York: The Macmillan Co., 1897. \$1.25.

strongly to intelligent farmers; but like all good books upon farm management, it must be read, as the writer has evidently intended it should be, with the understanding that while the statements are the fixed or tentative convictions of the author, they are not to be looked upon as axiomatic and received as unhesitatingly as the assertion that twice two make four. As a single instance in point, among many, where the importance and great value of frequent tillage is being discussed, the writer says (page 222):

During this year, as in the previous one, the vines remained fairly green until October 9, when they were killed by frost. There were no marked signs during the summer or fall of arrested growth and development due to lack of nitrogen or moisture. The rainfall during the six months from April to October 1895 and 1896, was as follows:

	1895	1896	Average rainfall for sixteen years prior to 1895
	Inches	Inches	Inches
April.....	1.47	1.02	2.27
May.....	3.60	2.64	4.23
June.....	3.37	4.36	3.69
July.....	1.96	3.69	3.88
August.....	4.12	2.43	3.30
September.....	2.03	3.84	2.94
	16.55	17.98	20.31

This table shows a deficiency of rainfall for six months in 1895, as compared with the average for sixteen years, of 3.76 inches, and in 1896 of 2.33 inches.

Other equally striking experiments could be cited to show the marked effect produced by frequent and superior tillage in securing available nitrogen and in conserving moisture, but those given will suffice to call attention to the means which may be successfully used to furnish nitrogen and other necessary plant-food and moisture, continuously to the growing plant. True, frequent inter-tillage benefits potatoes more than most other plants, since the earth-mulch, in addition to the beneficial effect already noted, serves to keep the soil cool, a condition which is highly beneficial to the potato in most localities. This earth-mulch was kept up until late in the season, and seemed to be quite as beneficial in the late as in the early part of the season, although it was not so perfect, since the cultivators had to be narrowed up that the partly grown tubers might not be disturbed.

From these and other similar experiments we are irresistibly led to the conclusion that the meager crops so universally secured are usually not due so much to the lack of rainfall and potential nitrogen and other elements of plant growth in the soil as to lack of ability or knowledge to make them available. Here, again, we arrive at the point where a choice must be made between utilizing the plant food and moisture already in the soil or securing the one by purchase and the other by expensive irrigation.

In this connection attention should be called to the fact that in the cases cited by the author the rainfall of August and September is fully up to the average for the sixteen years quoted, and that these are the critical months which determine what the yield of the potato crop shall be; hence it is possible that the results obtained were due quite as much to the rainfall of the two months cited as to the frequent inter-tillage which the crop received, and which is looked upon as the chief factor in securing the large yield. These suggestions are made not in the spirit of adverse criticism, but simply to call attention to the manner in which this and all similar books should be read.—
F. H. KING.

The Illustrated Flora.²

THAT the second volume of this important work should follow after the first at an interval of less than a year is a matter of surprise to many familiar with the usual delays in the preparation of such extensive works. To those who know Dr. Britton, however, this evidence of rapid and continuous work is no great surprise. The families treated in the present volume are of more general interest than those presented in the first, and give a better exemplification of the principles controlling the work. These principles need no further mention than that made in our review of the first volume. The sequence of families, that of Engler, certainly commends itself still more as a rational one when applied to our own familiar groups, and there should be no hesitation in using it. The general principles of the nomenclature adopted have already received the sanction of the GAZETTE. From our standpoint, however, the most serious changes in the nomenclature of the book arise not from the application of certain rules of nomenclature, but from the extreme views as to generic limitations. We are willing to grant that we have been entirely too conservative in holding together very distinct groups of species under a single genus, and this movement toward the breaking up of our polymorphic genera commends itself to our judgment. Such breaking up, however, may be carried to such an extreme that a genus will entrench too closely upon our conception of a species. We still believe that there is room for such a taxonomic group as a subgenus. This is so largely a matter of individual judgment, however, and affects so little the usefulness of the book under consideration, that it needs no further mention.

So much has been published recently upon our northeastern flora in a scattered way, that probably the greatest value of the book to the professional taxonomist is to have all this new material organized in systematic fashion,

² BRITTON, NATHANIEL LORD, and BROWN, HON. ADDISON. An illustrated flora of the northern United States, Canada, and the British possessions, etc. Volume II. Pp: 643. Portulacacæ to Menyanthacæ. New York: Charles Scribner's Sons, 1897. \$3.00.